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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,751	12/28/2005	Akio Ishikawa	56799/A400	7839

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EXAMINER	
RUSH, ERIC	
ART UNIT	PAPER NUMBER
2624	
MAIL DATE	DELIVERY MODE
12/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,751	ISHIKAWA, AKIO	
	Examiner	Art Unit	
	ERIC RUSH	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/9/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to the amendment and remarks received 9 September 2008. Claims 1 – 16 are currently pending.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwabara Masayuki JP 2002-342757 A in view of Lapidus et al. U.S. Patent No. 4,581,762.

- With regards to claims 1 and 9, Kuwabara Masayuki teaches a pattern comparison inspection apparatus for conducting an inspection for presence/absence of a defect within an inspection region comprising: an imaging portion which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch; (Kuwabara Masayuki, Paragraph 0001 Lines 1 – 6, Paragraph 0005 Lines 1 - 5) a storing portion which stores said captured image of said inspection target pattern; (Kuwabara Masayuki, Paragraph 0004 Lines 6 – 11) a pattern comparing

portion which compares, on said stored image, image signals taken from positions located at a first integral multiple of said repeat pitch away from each other within said inspection region defined inside said repeated pattern region; (Kuwabara Masayuki, Paragraphs 0006 - 0007) a defect detecting portion which detects a defect in said inspection target pattern based on a result of said comparison; (Kuwabara Masayuki, Paragraphs 0006 – 0007) a reference position selecting portion which selects from positions on said inspection target pattern, a reference position to be judged whether the selected reference position should be included in said inspection region; (Kuwabara Masayuki, Paragraph 0006 Lines 1 - 18) and an image comparing portion which compares a first image signal at said selected reference position with a second image signal at a position located at a second integral multiple of said repeat pitch away from said selected reference position and a prescribed distance inward of the boundary of said repeated pattern region. (Kuwabara Masayuki, Paragraph 0006 Lines 1 - 18) Kuwabara Masayuki fails to teach an inspection region defining portion which defines said inspection region by determining a boundary between said inspection region and an outside region thereof; and wherein said inspection region defining portion defines said inspection region by determining said boundary such that said inspection region contains therein said selected reference position where a comparison result from said image comparing portion indicates a values

not greater than a prescribed threshold value. Lapidus et al. teach an inspection region defining portion which defines said inspection region by determining a boundary between said inspection region and an outside region thereof; (Lapidus et al., Column 18 Lines 5 – 12, Lines 40 – 57, and Column 19 Lines 11 - 26) and wherein said inspection region defining portion defines said inspection region by determining said boundary such that said inspection region contains therein said selected reference position where a comparison result from said image comparing portion indicates a values not greater than a prescribed threshold value. (Lapidus et al., Column 18 Lines 5 – 12, Lines 40 – 57, and Column 19 Lines 11 – 26, Lapidus et al. teach setting an inspection region, and hence defining boundaries, which include the reference positions for comparison. Lapidus et al. also go on to find the region which exceeds a threshold but then repeatedly resets the threshold to a newly obtained correlation value and the finally obtained inspection region is a region which does not exceed the newest prescribed threshold value but is instead equal to it.) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Kuwabara Masayuki with the teachings of Lapidus et al. Lapidus et al. teach determining an inspection region whereby once determined further attributes and measurements may be obtained through the use of visual tools. This modification would have been prompted in order to accurately compare the two regions of

Kuwabara Masayuki by verifying that the positions for comparison belong to a first and second non-overlapping pattern region.

- With regards to claims 2 and 10, Kuwabara Masayuki teaches a pattern comparison inspection apparatus for conducting an inspection for presence/absence of a defect within an inspection region comprising: an imaging portion which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch; (Kuwabara Masayuki, Paragraph 0001 Lines 1 – 6, Paragraph 0005 Lines 1 - 5) a storing portion which stores said captured image of said inspection target pattern; (Kuwabara Masayuki, Paragraph 0004 Lines 6 – 11) a pattern comparing portion which compares, on said stored image, image signals taken from positions located a first integral multiple of said repat pitch away from each other within an inspection region defined inside said repeated pattern region; (Kuwabara Masayuki, Paragraphs 0006 - 0007) a defect detecting portion which detects a defect in said inspection target pattern based on a result of said image signals comparison; (Kuwabara Masayuki, Paragraphs 0006 – 0007) a reference position selecting portion which selects a reference position to be judged whether the selected reference position should be included in said inspection region, by incrementally shifting said selected reference position by a prescribed distance within

said inspection target pattern; (Kuwabara Masayuki, Paragraphs 0005 – 0007, Paragraph 0009, each pixel of a pattern is compared with it's respective pixel in an adjoining pattern) and an image comparing portion which compares a first image signal at said reference position with a second image signal at a position located at a second integral multiple of said repeat pitch away from said selected reference position. (Kuwabara Masayuki, Paragraph 0006 Lines 1 - 18) Kuwabara Masayuki fails to teach an inspection region defining portion which defines said inspection region by determining a boundary between said inspection region and an outside region thereof; and wherein said inspection region defining portion defines said inspection region by determining a position of said boundary based on said reference position where a comparison result, obtained from said image comparing portion as a result of incrementally shifting said reference position by said prescribed distance, indicates a change greater than a prescribed threshold value. Lapidus et al. teach an inspection region defining portion which defines said inspection region by determining a boundary between said inspection region and an outside region thereof; (Lapidus et al., Column 18 Lines 5 – 12, Lines 40 – 57, and Column 19 Lines 11 - 26) and wherein said inspection region defining portion defines said inspection region by determining a position of said boundary based on said reference position where a comparison result, obtained from said image comparing portion as a result of incrementally

shifting said reference position by said prescribed distance, indicates a change greater than a prescribed threshold value. (Lapidus et al., Column 18 Lines 5 – 12, Lines 40 – 57, and Column 19 Lines 11 - 26) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Kuwabara Masayuki with the teachings of Lapidus et al. Lapidus et al. teach determining an inspection region whereby once determined further attributes and measurements may be obtained through the use of visual tools. This modification would have been prompted in order to accurately compare the two regions of Kuwabara Masayuki by verifying that the positions for comparison belong to a first and second non-overlapping pattern region.

- With regards to claims 3 and 11, Kuwabara Masayuki teaches a pattern comparison inspection method and apparatus for conducting an inspection for presence/absence of a defect within an inspection region comprising: an imaging portion which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch; (Kuwabara Masayuki, Paragraph 0001 Lines 1 – 6, Paragraph 0005 Lines 1 - 5) a storing portion which stores said captured image of said inspection target pattern; (Kuwabara Masayuki, Paragraph 0004 Lines 6 - 11) a pattern comparing portion which compares, on said stored image, image signals taken from

positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region; Kuwabara Masayuki, Paragraphs 0006 - 0007) a defect detecting portion which detects a defect in said inspection target pattern based on a result of said comparison; (Kuwabara Masayuki, Paragraphs 0006 – 0007) a reference position selecting portion which selects a reference position to be judged whether the selected reference position should be included in said inspection region, by incrementally shifting said selected reference position by a prescribed distance within said inspection target pattern; (Kuwabara Masayuki, Paragraphs 0005 – 0007, Paragraph 0009, each pixel of a pattern is compared with it's respective pixel in an adjoining pattern) and an image comparing portion which compares a first image signal at said refrence position with a second image signal at a position located at a second integral multiple of said repeat pitch away from said reference position; (Kuwabara Masayuki, Paragraph 0006 Lines 1 - 18) and an inspection region setting portion. (Kuwabara Masayuki, Paragraphs 0006 – 0008) Kuwabara Masayuki fails to teach an inspection region defining portion for defining said inspection region by determining a boundary between said inspection region and an outside region thereof; said inspection region defining portion defines said inspection region by determining a position of said boundary based on said reference position where a comparison result, obtained from said image comparing portion

as a result of incrementally shifting said reference position by said prescribed distance, shows a maximum change. Lapidus et al. teach an inspection region defining portion for defining said inspection region by determining a boundary between said inspection region and an outside region thereof; (Lapidus et al., Column 18 Lines 5 – 12, Lines 40 – 57, and Column 19 Lines 11 - 26) said inspection region defining portion defines said inspection region by determining a position of said boundary based on said reference position where a comparison result, obtained from said image comparing portion as a result of incrementally shifting said reference position by said prescribed distance, shows a maximum change. (Lapidus et al., Column 18 Lines 5 – 12, Lines 40 – 57, and Column 19 Lines 11 – 26, specifically Column 19 Line 18) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Kuwabara Masayuki with the teachings of Lapidus et al. Lapidus et al. teach determining an inspection region whereby once determined further attributes and measurements may be obtained through the use of visual tools. This modification would have been prompted in order to accurately compare the two regions of Kuwabara Masayuki by verifying that the positions for comparison belong to a first and second non-overlapping pattern region.

- With regards to claims 4/1-3 and 12/9-11, Kuwabara Masayuki in view of Lapidus et al. teach a pattern comparison inspection method and apparatus as claimed in any one of claims 1 to 3 and 9 to 11, respectively. Kuwabara Masayuki teaches wherein said image comparing portion compares said image signal at said selected reference position with an image signal at a position located farther inside said repeated pattern region than said selected reference position. (Kuwabara Masayuki, Drawings 5 & 6, Paragraphs 0012, 0014 – 0015, and 0023, Masayuki teaches comparing an image signal at a reference position with a position located farther inside, at an integer multiple R within, the repeating pattern)

- With regards to claims 5/1-3 and 13/9-11, Kuwabara Masayuki in view of Lapidus et al. teach a pattern comparison inspection method and apparatus as claimed in any one of claims 1 to 3 and 9 to 11, respectively. Kuwabara Masayuki teaches wherein a position located at a prescribed distance inward of the boundary of said repeated pattern region is selected as said reference position, (Kuwabara Masayuki, Drawing 7, Paragraph 0023) and said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally moving said reference position outwardly toward the

boundary of said repeated pattern region. (Kuwabara Masayuki, Paragraph 0023)

- With regards to claims 6/2-3 and 14/10-11, Kuwabara Masayuki in view of Lapidus et al. teach a pattern comparison inspection method and apparatus as claimed in any one of claims 2 or 3 and any one of claims 10 or 11, respectively. Kuwabara Masayuki teaches a method and apparatus further comprising a tentative region setting portion which sets a tentative region at a prescribed distance inward of the boundary of said repeated pattern region, (Kuwabara Masayuki, Drawing 7, Paragraph 0023, the positions used for comparison are merely temporary, tentative, as they are incremented) and wherein said image comparing portion compares said image signal at said selected reference position with an image signal at a position located inside said tentative region. (Kuwabara Masayuki, Paragraph 0023)

- With regards to claims 7/1-3 and 15/9-11, Kuwabara Masayuki in view of Lapidus et al. teach a pattern comparison inspection method and apparatus as claimed in any one of claims 1 to 3 and 9 to 11, respectively. Kuwabara Masayuki teaches a method and apparatus further comprising a tentative region setting portion which sets a tentative region at a prescribed distance inward of the boundary of said repeated pattern

region, (Kuwabara Masayuki, Drawing 7, Paragraph 0023, the region, for ex. A1, is merely tentative because once comparison is complete the region is re-set) and wherein a position located inside said tentative region is selected as said reference position, (Kuwabara Masayuki, Drawing 7 and Paragraph 0023 - 0024) and said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally shifting said reference position outwardly toward the boundary of said repeated pattern region. (Kuwabara Masayuki, Drawing 7 and Paragraph 0023 - 0024)

- With regards to claims 8/1-3 and 16/9-11, Kuwabara Masayuki in view of Lapidus et al. teach a pattern comparison inspection method and apparatus as claimed in any one of claims 1 to 3 and 9 to 11, respectively. Kuwabara Masayuki teaches wherein a position located at a prescribed distance outward of the boundary of said repeated pattern region is selected as said reference position, (Kuwabara Masayuki, Drawing 7 and Paragraph 0023 – 0024, the positions chosen for reference are outwardly position relative to the boundary) and said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally shifting said reference position inwardly toward the boundary of said repeated pattern region. (Kuwabara Masayuki, Drawing 7 and Paragraph 0023 - 0024)

Response to Arguments

4. Applicant's arguments filed 9/9/2008 have been fully considered but they are not persuasive. On page 12 of the remarks Applicant's Representative argues that none of the cited prior art teach "setting said inspection region by determining said boundary such that said inspection region includes said selected reference position where said comparison of said first and second image signals indicates a value not greater than a prescribed threshold value." The Examiner respectfully disagrees and asserts that Lapidus et al. is relied upon to teach setting said inspection region by determining said boundary such that said inspection region includes said selected reference position where said comparison of said first and second image signals indicates a value not greater than a prescribed threshold value. Lapidus et al. teach setting an inspection region, and hence defining boundaries, which include the reference positions for comparison. Lapidus et al. also go on to find the region which exceeds a threshold but then repeatedly resets the threshold to a newly obtained correlation value and the finally obtained inspection region is a region which does not exceed the newest prescribed threshold value but is instead equal to it.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC RUSH whose telephone number is (571)270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit 2624

ER